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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/746,713	12/21/2000	Yasuo Ohdaira	00629CIP/LH	1181

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New York, NY 10017-2023

EXAMINER

LEE, SHUN K

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 01/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/746,713

Applicant(s)

OHDAIRA ET AL.

Examiner

Shun Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2003 and 29 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/21/00 & 3/17/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/652,500.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2 October 2003 has been entered.

Claim Objections

2. Claims 17-19 are objected to because of the following informalities:
- (a) in claim 17, "flourescent" on line 2 should probably be --fluorescent--;
 - (b) in claim 18, "flourescent" on line 3 should probably be --fluorescent--; and
 - (c) in claim 19, "flourescent" on line 3 should probably be --fluorescent--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

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were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baer (US 5,866,911) in view of Marcu *et al.* (US 6,272,376) and Alexander (US 6,522,345).

In regard to claim **16**, Baer discloses (Fig. 7) a laser scanning microscope comprising:

- (a) a pulse laser unit (70) configured to oscillate a pulse laser beam to excite a sample (19);
- (b) a scanning mirror (16) configured to scan the pulse laser beam;
- (c) a photodetector (23; which may be a photomultiplier tube; column 4, lines 31-36) configured to detect light from the sample (19) and output a photodetector detection signal;
- (d) a sampling control circuit (74, 75, 76) which receives a pulse oscillation signal (*i.e.*, detect oscillation of the pulse laser beam) from the pulse laser unit (70) and generates a trigger signal delayed by a predetermined time (*i.e.*, electrically adjusting to provide an interval from zero to several picoseconds; column 11, lines 37-44); and
- (e) a memory (24) which stores the photodetector detection signal.

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While Baer also discloses (column 11, lines 8-12) that “laser dyes and their local environments can be characterized by fluorescence lifetime measurements, with minimal additional equipment costs”, the microscope of Baer lacks that the additional equipment for fluorescence lifetime measurements comprise an A/D converter which converts the photodetector detection signal to digital data in synchronism with each of a plurality of sampling pulse signals generated by a pulse generator for each trigger signal received from the sampling control circuit. However, equipment for fluorescence lifetime measurements such as conventional commercially available digital oscilloscopes (comprising A/D converters and pulse generators) are well known in the art. For example, Marcu *et al.* teach (column 7, lines 11-56) equipment for fluorescence lifetime measurements comprise a conventional commercially available digital oscilloscope which triggered to capture the photodetector (*i.e.*, photomultiplier tube 20) detection signal. Further, Alexander teaches (column 1, lines 15-29; column 3, lines 59-62; column 7, lines 26-28; column 8, lines 3-19) that a conventional (commercially available) digital oscilloscope sample and record time varying analog signals (*i.e.*, voltage signals as a function of time) using well-known analog-to digital conversion electronics driven by a time base (*i.e.*, pulse generator) which is triggered by a trigger signal as is well known in the art. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to provide additional equipment such as a conventional commercially available digital oscilloscope (comprising well known pulse generators and A/D converters) in the microscope of Baer, in order to obtain fluorescence lifetime measurements.

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In regard to claim **17** which is dependent on claim 16, the microscope of Baer lacks that digital integration of a fluorescent signal is performed using the digital data stored in the memory. However, analysis of time-resolved fluorescence data is well known in the art. For example, Marcu *et al.* teach (column 4, lines 42-54; column 8, lines 23-54) that fluorescent intensity data at a given wavelength can be obtained by integrating the intensity decay curve at the given wavelength. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to digitally integrate a intensity decay curve stored in the memory of Baer, in order to obtain fluorescence intensity at a desired wavelength.

In regard to claims **18** and **19** which are dependent on claim 16, the microscope of Baer lacks that analysis is performed to detect a peak or a time constant of a fluorescent signal using the digital data stored in the memory. However, analysis of time-resolved fluorescence data is well known in the art. For example, Marcu *et al.* teach (column 4, lines 42-54; column 8, lines 23-54) that data analysis comprise of determining peak amplitudes and time constants in order to make the information more manageable. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to analyze the intensity decay curves stored in the memory of Baer, in order to determine peak amplitudes and time constants so as to reduce the information to a more manageable form.

Response to Arguments

6. Applicant's arguments with respect to newly added claims have been considered but are moot in view of the new ground(s) of rejection.

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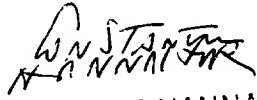
Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (703) 308-4860. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703) 308-4852. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

SL


CONSTANTINE HANNAHER
PRIMARY EXAMINER
GROUP ART UNIT 2878